

# Towards coexistence: First steps to modifying human-elephant relationships in a conflict-prone landscape in the Anamalai hills, India

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**nature conservation foundation**  
*science for conservation*

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## Acknowledgements

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# Chapter 1. Distribution of elephants and human habitations in the fragmented landscape of the Valparai plateau

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## Project back ground

### Introduction

Human-elephant conflict is considered one of the major threats to conservation of elephants in the Asia and Africa (Africa: Lahm 1996; Hoare 1999; Sitati *et al* 2003; Asia: Blair *et al.* 1979; Sukumar 1990; Nath and Sukumar 1998; Williams *et al.* 2001, Madhusudan 2003). Fragmentation, developmental activities, agriculture, human density, and widespread human habitations have resulted in reduction of natural habitats for wide-ranging mammals such as elephants and increased human-elephant encounters (Nyhus *et al.* 2000, Singh *et al.* 2002). In such situations, elephants not only have to ecologically adapt to the modified habitats, but also make behavioural modification to face the pressures prevalent in human-altered elephant landscapes. The close and frequent encounters between humans and elephants may have detrimental effects on long-term conservation of elephants. Understanding the relationships between landscape elements such as human habitations, habitat remnants, and elephant activity has been suggested as an important area of research (Hoare 1999). Understanding the role of the landscape elements on elephant movement and incidence of conflict in fragmented habitat mosaics is vital for human-elephant conflict resolution and thereby, conservation of elephants. Conflict resolution in such modern landscapes largely depends on increasing threshold levels of local residents towards elephants by educating and awareness building, while carrying out pragmatic and attainable conflict mitigation efforts.

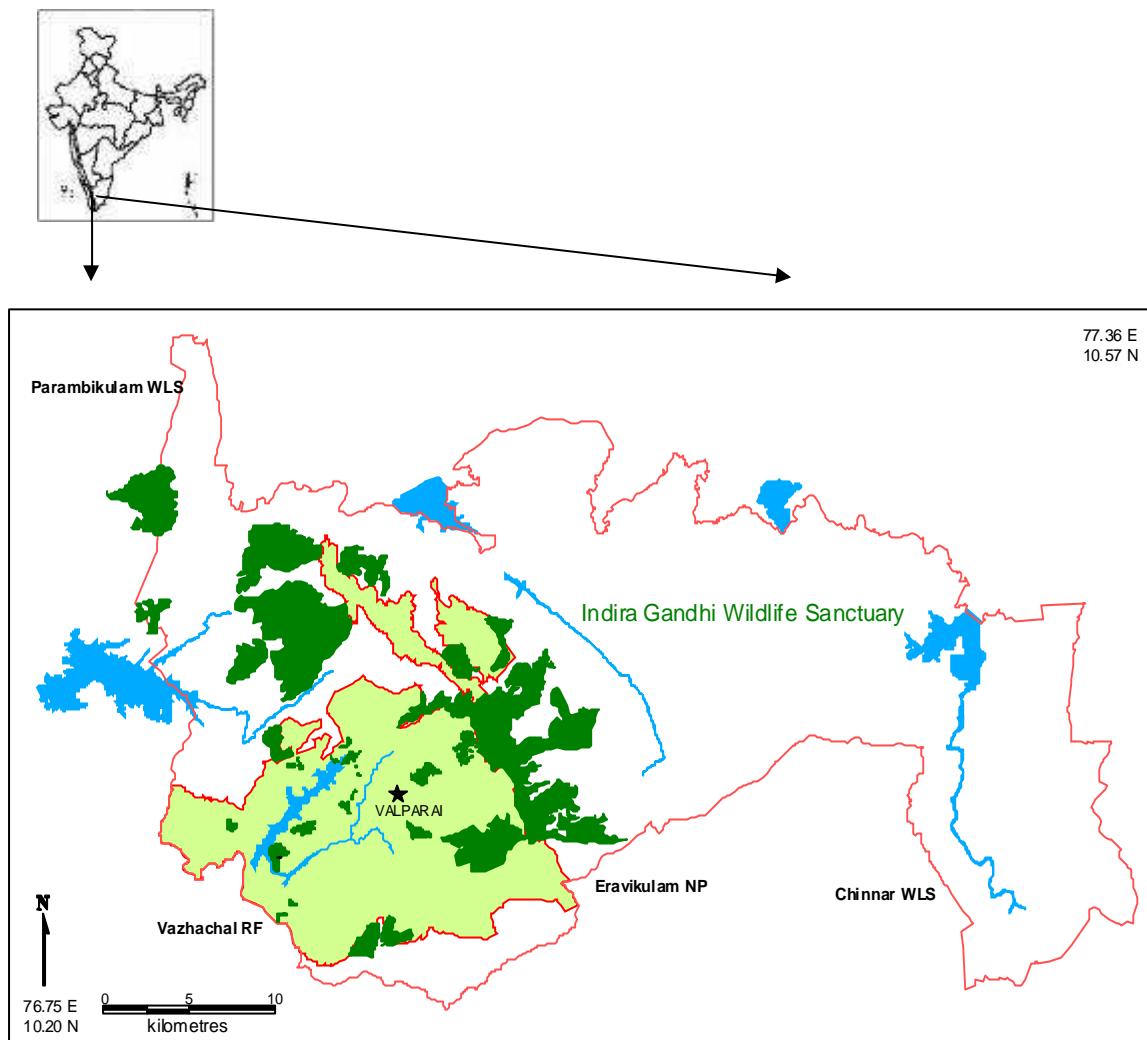
### Conservation issue

The Anamalai hills in the southern Western Ghats of India is an important conservation area for Asian elephants (*Elephas maximus*). In the 1800s, nearly 220 km<sup>2</sup> of prime rainforest area around the present town of the Vaparai was clear felled for tea, coffee, and cardamom plantation. This has resulted in two major detrimental effects on the elephant habitats in the Anamalai hills. First, fragmentation of once large continuous tracts of natural habitats into islands of rainforest remnants embedded within the vast stretches of commercial plantations, and second, settlement of a large number of people from the plains as permanent settlers in this hilly region. The Valparai plateau is an island of plantations embedded in the middle of protected areas within the Anamalai-Parambikulam elephant reserve, adjoining the Indira Gandhi Wildlife Sanctuary (Figure 1). The Anamalai-Parambikulam Elephant Reserve in the Anamalai hills is a home for second largest Asian elephant population (Sukumar 1989) with over 1500 elephants (Desai 2000) in an area of 5700 km<sup>2</sup>. Our previous study over a period of three years on Asian elephants in this region revealed that there have been constant incidents of human-elephant conflict and a regular movement of elephants in the Valparai plateau (Kumar *et al.* 2004 and Kumar 2006). In the Valparai plateau, human-elephant conflict is mainly in the form of damage to properties (rooms, stores) where food grains such as rice, lentils, and sugar are stored and also to residential places. Damage to crops is negligible as elephants do not feed on tea which is the most dominant crop on the plateau. Most of the conflict incidents are caused by family herds in contrast to other places where higher proportion of conflicts are due to adult bull elephants (Sukumar

1990, Nath and Sukumar 1998). Several hundred scattered human settlements on the plateau occur along elephant movement routes, especially close to water sources. This results in frequent encounters of elephants with humans, leading to trauma and loss of human lives (on average 2 persons per year) and the harassment and death of elephants (at least 1 per year). The widespread distribution of human habitations interferes with and obstructs elephant movements and is a source for high incidents of human-elephant conflicts in the Valparai region. Thus, the Valparai plateau has become a focal point and a sensitive region for conservation of elephants in the Anamalai hills.

In such a situation, it is essential to identify and start co-existence measures on an experimental basis with human stakeholders. This will help reduce trauma for both elephants and humans, create a positive attitude towards elephants, and a situation conducive to long-term coexistence.

This project focused on identifying sensitive areas along elephant movement routes and critical conflict areas in plantations. Second, by comparing results of the study with our previous study on elephant-human conflict, we can identify specific human habitations which are regular areas of conflict and close to elephant movement paths. Such information is critical to identify areas which need conflict mitigating measures on a priority basis. The project also focussed on putting in place pro-active conflict resolution strategies to reduce human-elephant conflict and allow for an easy



**Figure 1.** Map of the Valparai plateau with plantations (light green), rainforest fragments (dark green), and surrounding protected areas.

passage of elephants through the Valparai plateau. The project initiated conflict mitigating measures with the help of local plantation companies, media, individual land owners, and the state Forest Department. Such initiation is imperative in the long run as more encounters between people and elephants could further intensify negative attitudes towards elephants and provoke retaliatory measures against elephants on the Valparai plateau. The present project implemented some of the suggestions based on our previous research on Asian elephants in the Valparai region. The information from this project helped to identify human colonies close to elephant movement routes and to implement appropriate mitigating measures by the local community. With this background information, this project aimed to:

1. To study movement of elephants in relation to distribution of human habitations on the Valparai plateau, and
2. To initiate involvement of local media and local company estates to reduce human-elephant encounters and build human-elephant coexistence in the region.

#### **Study area and focal elephant herds**

The 220 km<sup>2</sup> area of the Valparai plateau is dominated by commercial plantations, particularly tea, with embedded rainforest fragments. The commercial plantations on the plateau are mostly owned by seven major companies and a host of smaller estates. The plateau is surrounded by several wildlife sanctuaries, national parks, and reserved forests. The natural vegetation in this region, receiving around 3500 mm of rainfall annually from the southwest and northeast monsoons, is classified as mid-elevation tropical wet evergreen forest of the *Cullenia-Mesua-Palaquium* type (Pascal 1988). The altitude in the Valparai plateau ranges between 1000 and 1450 m above sea level.

Most of the Valparai plateau is enclosed by Indira Gandhi Wildlife Sanctuary (987 km<sup>2</sup>, 10° 12' N to 10° 35'N and 76° 49' E to 77° 24'E (Fig. 1). Scattered human habitations with over 100,000 people (average human density of 455 people/km<sup>2</sup>) live in the Valparai plantation district.

This study is focussed on two elephant herds that range over most part of the Valparai plateau and spend considerable amounts of time in a year. The herd sizes and age-sex distribution of the two focal herds are given in table 1.1.

**Table 1.1.** Age-sex distribution and herd size of focal herds

Age-sex class	Herd 1	Herd 2
Adult female	3	10
Adult male	1	0
Sub adult female	0	0
Juvenile female	1	2
Juvenile male	1	1
Calves	2	5
Total	8	18

## Methods

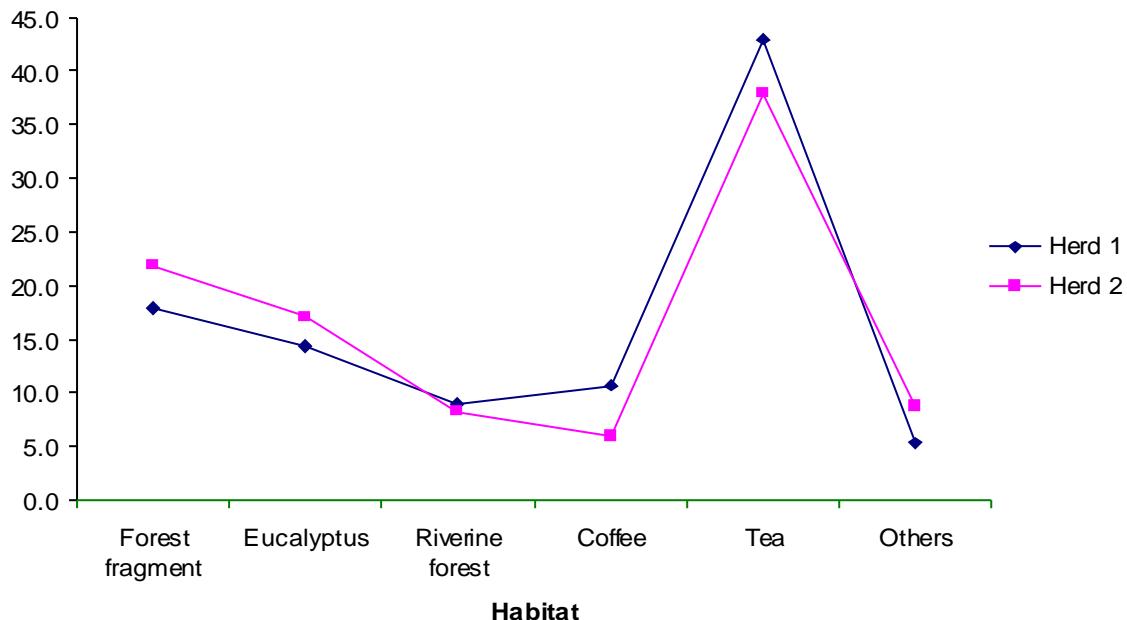
Direct surveys and information from local informants were used to detect elephants within the plantation landscape of the Valparai plateau. Once an elephant herd was found, the same herd was followed on subsequent days until the herd moved out of the private plantations into the surrounding sanctuary. Tracking of elephants was carried out using GPS (Geographical Positioning System, Garmin 12 XL) readings for every 500 m or less along the path/movement route used by the herd through the estates (Kumar *et al.* 2004). For every GPS location, I recorded date, season, time of the day, estate name, habitat, surrounding habitat within 500 metres, and the approximate distances to nearest human colony, and presence of forest fragment and *Eucalyptus* patch within a radius of 1 km. Most of the human colonies within the movement area of two focal elephant herds were mapped using GPS and plotted using Arc View GIS 3.2 computer software.

Information on conflict incidents were collected while tracking elephants or from reports by informants through field assessment of conflict incident at damage site. Each conflict incident record carries information on date, month, season, herd identity, time, estate name, place identity such as ration shop, labour line, bungalow, habitat, surrounding habitat within 200 metres, reaction of people such as whether animals were chased or not chased by people, distance of human settlement, distance of nearest fragment, and GPS location. Assessment of damage was carried out by collecting information on details of items damaged such as number of roof tiles, number of wooden reapers, door latches, quantity of materials such as number of sacks of rice, weight of lentils and other ration items etc. Extent of damage to building was calculated by visual measurement of property. Cost of damage to property was estimated by collecting information on market price of items damaged and labour costs involved to repair items lost. More than one conflict incident in one night within 100 meters from a conflict site is considered as one incident. Since conflicts occurred during the night time, I followed the path taken by elephants from the site of conflict to recognise the identity of herd which caused the damage.

## Results

### *Use of mosaic of habitats*

Differences in comparative use of habitats by two focal herds (herd 1 and 2) were analysed (Fig. 2). For herd 1 and 2, a total 56 and 182 locations were recorded between July and November. Both herd 1 and herd 2 used tea predominantly (42.9% and 37.9%, respectively) compared to other habitats such as *Eucalyptus* (14.3% and 17%), and coffee (10.7% and 6.0%, respectively) on the Valparai plateau. However, both herds used natural vegetation (26.8% and 30.2%, respectively) less frequently than plantation habitats such as tea, coffee, and *Eucalyptus* (67.9% and 61%, respectively). Other habitats including cardamom, swamps, and grassy patches were used with less frequently by herd 1 and 2 (5.4% and 8.8%, respectively). The usage of habitats did not differ significantly ( $\chi^2 = 2.775, df = 4, P > 0.5$ ) between two herds.



**Fig. 2.** Percentage use of different habitats by the two focal herds during the study.

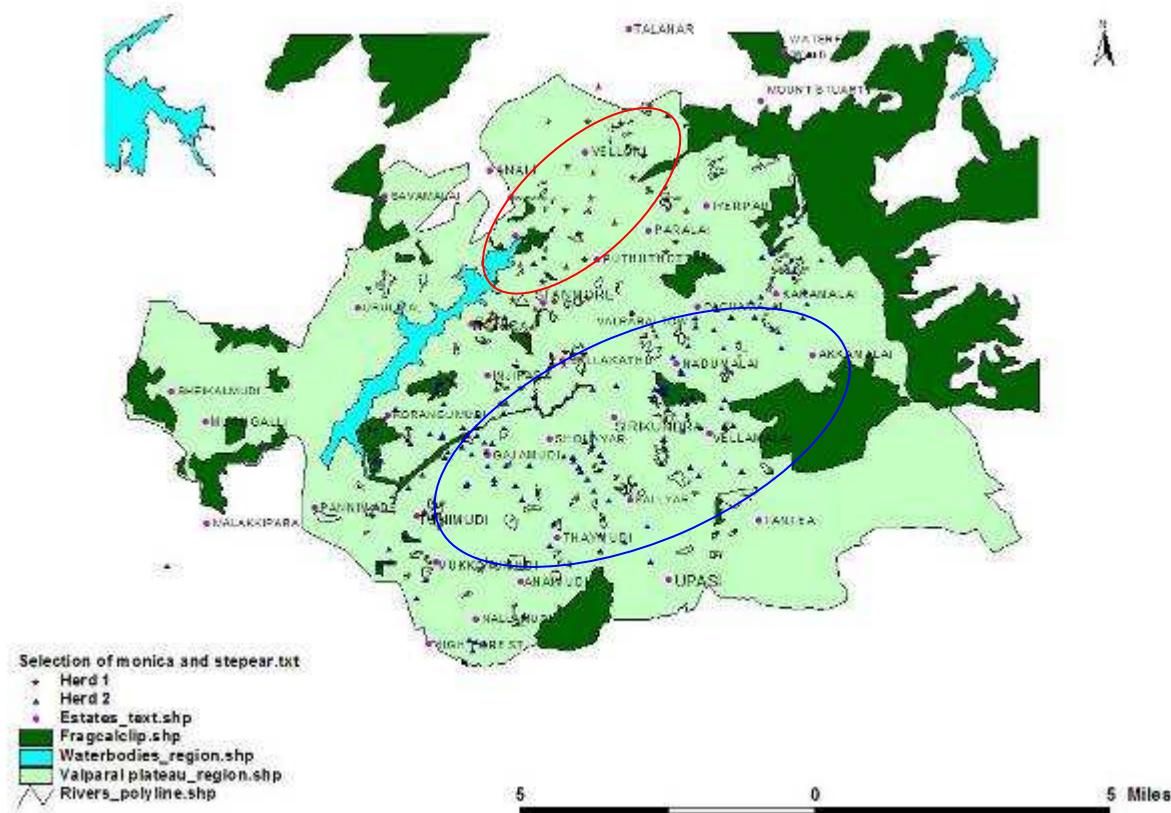
Percent use of mosaic of habitats used for 238 locations by herd 1 and 2 was analysed across seven companies and surrounding sanctuary bordering plantations (Table 1.2) to estimate use of different habitats. Tea, a dominant habitat has been used by focal herds with high frequency in all the companies. However, apart from tea, both the herds used coffee and others habitats such as swamps and grassy areas in BBTC and Jayashree companies. Whereas, in company properties of Parry Agro Industries and Periya Karamalai Tea company (PKT) elephants were found use *Eucalyptus* more frequently than other habitats. Forest fragment is used more frequently in Tata Coffee, Tea Estates India, and Woodbriar companies than other available habitats in these companies.

**Table1.2.** Use of habitats by focal herds across companies and Government owned properties

Company	Forest fragment	Eucalyptus	Riverine	Coffee	Tea	Others
BBTC	8.0	14.0	12.0	<b>20.0</b>	38.0	8.0
Jayashree	16.7	16.7	0.0	0.0	45.8	<b>20.8</b>
Parry Agro	0.0	<b>33.3</b>	16.7	0.0	50.0	0.0
PKT	0.0	<b>40.0</b>	4.0	0.0	44.0	12.0
Tata coffee	<b>26.7</b>	16.7	3.3	13.3	33.3	6.7
Tea Estates India	<b>23.9</b>	14.9	14.9	0.0	41.8	4.5
Woodbriar	<b>41.2</b>	0.0	5.9	11.8	29.4	11.8

### *Spatial distribution of elephants*

A total of 238 locations for herd 1 (56 locations) and herd 2 (182 locations) were plotted on the map of the Valparai plateau. There was a high concentration of movement and usage of areas in the centre of the plateau by both herds (Fig. 2). However, most sightings of herd 1 were found in the centre and north of the Valparai plateau. This included the following estates: Velonie, Varattuparai, Anali, and Selaliparai estates belonging to Tata Coffee, and Stanmore, Injipara, Monica, Nallacathu, Puthuthottam estates in Tea Estates India, and Upper Paralai and Lower Paralai in Parry Agro estates. Herd 2 frequently used areas in the centre, south, south east, and north east of the Valparai plateau. There was regular use of areas in Thaymudi, Anaimudi, Nallamudi, Thonimudi, and Gajamudi estates (BBTC), Sholayar and Kallayar (Jayashree), Sirikundra, Nallacathu, and Injipara (Tea Estates India) and Nadumalai, Vellamalai, and Karamalai (PKT).



**Fig. 3.** Main distribution of locations of herd 1 (red) and herd 2 (Blue) across estates on the Valparai plateau

### *Elephant movements in relation to distance of human settlements*

A total of 238 elephant locations (56 for herd 1 and 182 herd 2) were analysed in relation to human colony distribution across estates on the Valparai plateau (Table 1.3). Both herds used areas away from settlements more frequently (83%) than areas close to or within human colony (nearly 17%). Around 73% of the locations of herd 1 was found to be away from human colonies as compared to the area with human settlements (27%). Herd 2 used areas away from colonies 86% as compared to 14% of the locations being within human colonies. There is significant difference in movements and use of areas in relation distribution of human settlements between herd 1 and herd 2 ( $\chi^2 = 34.26, df = 4, P < 0.01$ ).

**Table 1.3.** Elephant distribution in relation to distance from human colonies

Distance from human colonies	Herd 1(%)	Herd 2 (%)	Total (%)
Within	26.8	13.7	16.8
1-50m	8.9	8.8	8.8
51-100m	12.5	14.8	14.3
101-500m	51.8	53.8	53.4
More than 500m	0.0	8.8	6.7

### Human-elephant conflicts and relationships

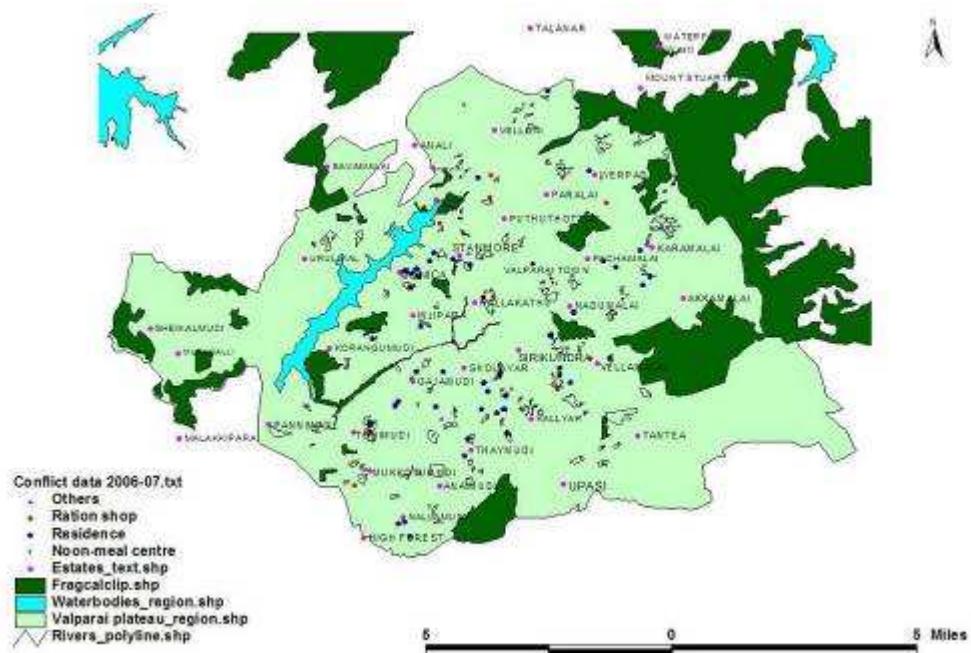
#### *Spatial distribution of conflicts*

Spatial distribution of human-elephant conflict was analysed on the Valparai plateau (Table 1.4, Fig. 4). A total of 82 incidents occurred between July and November. Total cost of the damages was estimated to be around Rs. 211,531 (US\$ 4700). Data on conflict costs and number of incidents was analysed for herd 1 and herd 2 across seven companies. Highest number of conflict incidents and costs were caused by Herd1 in Tea Estates India property. Herd 2 caused highest damages in BBTC and Jayashree properties.

**Table 1.4.** Distribution of conflict costs in Indian rupees and number of incidents (in parentheses) across companies

Company	Herd 1	Herd 2	Total cost
BBTC		82,256 (19)	82,256
Jayashree		38,070 (13)	38,070
Parry Agro	8,852 (4)		8,852
PKT		21,593 (9)	21,593
Tata	17,001 (6)	8,230 (3)	25,231
Tea Estates India	24,552 (21)	2,041 (3)	26,593
Woodbriar		1,336 (1)	1,336
Total cost	50,405(31)	153,526 (48)	203,931

Most of the damages on the Valparai plateau was caused to residential places including 54 incidents causing a damage of Rs. 112,342 (US\$ 2,496). Fifteen conflict incidents were at ration shops amounting to Rs. 63,091 (US\$ 1,402). There were 12 incidents of damages to noon-meal centres amounting to Rs. 10,311 (US\$ 229). Most of conflict incidents and damages caused by herd 1 were in the centre and north of the plateau whereas herd 2 caused most of the damages in the southwest and north east of the Valparai plateau (Fig. 4). Based on repeated elephant visits and combining with our previous results 10 ration shops, 34 residential places, and nine noon-meal centres were identified as critical areas of conflict during project period.



**Fig. 4.** Distribution of conflict locations of types of places across estates on the Valparai plateau

## Discussion

The Valparai plateau with its surrounding wildlife sanctuaries and reserve forests occupies a unique geographical position in the Anamalai hills. Due to the establishment of commercial plantations (Congreve 1942) such as tea, coffee, *Eucalyptus*, and cardamom the prime rainforest areas are in the form of degraded fragments. In such altered habitats, elephants have to use mosaic of habitats that are available on the Valparai plateau on their movement and use of habitats. Both herds were found to use tea habitat with higher percentage than other habitats. Tea is the most dominant habitat in the Valparai region. However, in areas where many forest fragments are available (Tata Coffee, Tea Estates India, Woodbriar) elephants have shown a strong tendency to prefer natural vegetation to other habitats. In Parry Agro and PKT, elephants seem to use *Eucalyptus*, whereas they use coffee in BBTC estates (this area is now cleared). A large portion of the area in Jayashree estates is under tea, where swamp and grassy areas seem to be used highly. The relatively high percent use of forest fragment is due to the presence of one fragment which is one of the most important fragments for herd 2 on their movement on the Valparai plateau.

In conformity with our previous study results, this study also indicated that there is high concentration of elephant sightings in the middle of the plateau. Both herds did use certain areas exclusively on the plateau. Herd 1 mostly moved in the areas belonging to Tata coffee, Tea Estates India, and Woodbriar companies in the centre and northeast of the plateau, whereas herd 2 mostly used areas belonging to BBTC, Jayashree, and PKT companies (south, south east, and north east of the Valparai plateau).

The wide distribution of human settlements is an obstacle for elephant movement on the Valparai plateau. Elephants are bound to move through at least some

of the human colonies on the plateau. The analysis on elephant sightings in relation to human distribution clearly indicates that both herds seem to move away from colonies as far as possible. Both herds have shown a strong tendency to avoid human colonies during their movement and stay on the Valparai plateau. More detailed analysis including spatial analysis is being carried out and the results will be available at a later date.

Human-elephant conflict is a major concern for the conservation of elephants in the elephant range countries. On the Valparai plateau elephants, do not feed on tea but cause damages to ration shops, noon meal centres, and residential places. The herd 1 caused damages mostly to ration shops and noon meal centres, whereas herd 2 mostly caused damages to residential places especially at the kitchen side. The absence of areas with adequate forage (such as forest fragments and *Eucalyptus* fuel-clearings) within the range of herd 2 and the continuous harassment of elephants by people while they are in the open spaces of tea (which would affect their foraging and feeding time) may be the reasons for them causing damage to human habitations.

## **Chapter 2. Involvement of media and local community in coexistence of people and elephants in the Valparai region**

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The major stakeholders in this region are the plantation companies, the plantation workers, tribal communities, people with business interests, conservation agencies and the State Forest Department. The mass media including daily newspapers in the vernacular (Tamil) and in English, and television play major roles in influencing the awareness and attitudes of the local people. This makes it imperative for the agencies involved in wildlife conservation (conservation agencies and the Forest Department) to inform and educate the personnel involved in mass media about the facts and processes of wildlife conservation. An educated and harmonious interaction between all the stakeholders is vital in long-term conservation of wildlife, particularly of large mammals such as the Asian elephant, in human-dominated landscapes such as the Valparai Plateau. These interactions could lead to better management of conflict situations and help promote and spread positive attitudes towards elephants. This requires sharing views and communicating information from research studies by organizing interaction meetings with various agencies. From our prior interaction with press, positive results were obtained in outreach programmes. In this project, media, Forest Department, and local company management were involved to develop and strengthen human-elephant relationships in order to effectively bring about local changes for elephant conservation and conflict resolution. The following activities were carried out during the project period. This is an on-going research and conservation project. A more detailed report and any other publication from this project will be shared with you as and when they are prepared or published. One of the important activities that was being carried out during the project period was the initiation of development of an elephant corridor between two forest fragments that are used by elephants (Puthuthottam and Iyerpadi top fragments). The activities carried out are mentioned in the Table 2.1.

**Table 2.1.** Activities performed in 2006 to initiate corridor development on the Valparai plateau

S. No.	Month	Group	Type of discussion	Activity	Results
1	May	Range Forest Officer, Valparai range, Indira Gandhi Wildlife Sanctuary	Formal discussion	Development of elephant corridor between Puthuthottam and Iyerpadi top fragments	Field assessment on 18/5/2006
2	May	Range Forest Officer, Valparai range, Indira Gandhi Wildlife Sanctuary	Formal field assessment	Marking area using GPS between Puthuthottam and Iyerpadi top fragments	Length, width and area passing through different estates was calculated

S. No.	Month	Group	Type of discussion	Activity	Results
3	June	Range Forest Officer, Valparai range, Indira Gandhi Wildlife Sanctuary	Formal discussion	Field assessment details of corridor	Formal discussion with respective companies in corridor area will be invited and involved.
4	June	Range Forest Officer, Valparai range, Indira Gandhi Wildlife Sanctuary	Communication of letter to estate management	A formal letter by the Valparai Range officer from the Tamilnadu Forest Department	
5	June	Tamilnadu Forest Department, Tata Coffee, Tea Estates India, Parry Agro Industries, Nature Conservation Foundation	First informal discussion	Discussed the possibility of developing elephant corridor along with details of field assessment	Agreement on cooperation on corridor development after discussions with higher management by estate managers
6	August	Tamilnadu Forest Department, Tata Coffee, Tea Estates India, Parry Agro Industries, NCF	Second informal discussion	Discussed on the informal committee for corridor development by stakeholders	Assignment of duties, arrangement of corridor field site for company managers by NCF
7	August	Pachhamalai manager (Tata Coffee)	Formal field assessment	Field inspection to corridor development area by Pachhamalai Manager	Area under non-tea area passing through swamp connecting to Iyerpadi top fragment from Puthuthottam

S. No.	Month	Group	Type of discussion	Activity	Results
8	September	Tamilnadu Forest Department, Tata Coffee, Tea Estates India, Parry Agro Industries, Nature Conservation Foundation	Third informal discussion	A formal presentation by the Nature Conservation Foundation about protocol on native species nursery raising for corridor development	Formation of Valparai Corridor Conservation Council

In order to improve human-elephant coexistence and develop positive attitude among local public, several activities and discussions were carried out during the project period. Details are given in the following Table 2.2.

**Table 2.2.** Activities and discussions in 2006 with local stakeholders.

S. No.	Month	Group	Type of discussion	Activity	Results
1	May	General Manager Periya Karamalai Tea Company (PKT), Karamalai	Formal discussion	Discussion on reasons for elephant movement and possible steps needed to avoid direct encounters with elephants	An information on critical conflict areas will be circulated to all estate managers in PKT
2	June	Manager Chintamani stores Valparai	Formal discussion	Discussed about the possibility of implementing human-elephant resolution measures	Obtained details of higher officials of Chintamani Cooperative Stores, Coimbatore for further discussion
3	June	Joint Register, Chintamani Cooperative Stores, Coimbatore	Telephonic conversation	Organizing workshop for Government ration shop personnel	Suitable date needs to be decided shortly

S. No.	Month	Group	Type of discussion	Activity	Results
4	September	Member of Legislative Assembly, Tamilnadu Government	Informal meeting in field	Explained about critical areas of use by elephants and the necessity of natural vegetation along streams for elephant movement on the Valparai plateau	Assured of discussion with the concerned authorities to develop linkages between fragments along streams
5	September	Manager, Sirikundra estate, Tea Estates India	Informal discussion	Discussed precautionary steps need to be taken during direct encounters with elephants	A formal meeting will be arranged with estate workers to convey research results
6	September	Government school teachers	Informal discussion	Restoration of rainforest and human-elephant conflict on the Valparai plateau	Promised to initiate awareness programme on rainforest protection and importance of elephants by teachers in school
7	October	Estate Workers	Informal discussion	The need for cooperation from estate workers in installation of early warning system about elephants	Agreed to cooperate to maintain early warning system if installed
8	October	Government High school	Formal talk	Necessity for restoring rainforests and effect of harassment of elephants on their behaviour	

S. No.	Month	Group	Type of discussion	Activity	Results
10	October	General Manager Periya Karamalai Tea Company (PKT), Karamalai	Formal discussion	Feasibility of implementing conflict resolution measures such as installation of trip-wire alarm system, development of 'elephant information display' on local TV	Possibilities of covering expenses of trip-wire alarm installation in selected colonies. Hiring two watchmen to inform about elephant presence.
11	October	Anaimudi Manager, Anaimudi	Formal discussion	Dealing with human-elephant conflict situation	Instructions were given to estate workers avoid using fire crackers to chase away elephants
12	October	Keelperatu estate workers, Thaymudi estate, BBTC	Interaction meeting	Precautionary steps required during direct encounters with elephants	
13	October	Gajamudi Factory Manager Mudis	Formal discussion	Discussed on installation of trip-wire alarm and early warning systems in critical human areas	Willing to try out installation of trip-wire alarm system on experimental basis
14	October	Member of Legislative Assembly, Tamilnadu Government & Range Forest Officer, Indira Gandhi Wildlife Sanctuary	Field visit to elephant damage sites	Explained the necessity of corridors, stress due to harassment of elephants by people, and installation of power fence and trip wire alarm system for critical human colonies	Assured of corridor development. A formal meeting will be convened along with the Forest Department to discuss conflict resolution measures

S. No.	Month	Group	Type of discussion	Activity	Results
15	December	Range Forest Officers, Manamboli and Valparai Ranges, , Indira Gandhi Wildlife Sanctuary	Circulation of official draft on critical habitats for elephants in the Valparai region	A draft on “Elephants: symbol of the Anamalai hills. An appeal to all estate people and management”	Draft circulated as guidelines to all companies through the Forest Department
16	December	Assistant Conservator of Forest, Indira Gandhi Wildlife Sanctuary	Circulation of draft	A draft on critical areas of use and movement by elephants in the Valparai region	

#### *Involvement of media*

Regular interactions were held with editors and press reporters to develop positive attitude towards elephants. This was attempted by reporting factual information and importance of elephants and their requirements on the Valparai plateau in daily Tamil and English news papers. Copies of the newspaper articles published in the English and vernacular news papers are mentioned in the Appendix 1.

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## Appendix 1

### Media articles about the project, its findings, output, and awareness

**INDIAN EXPRESS**

## Valparai to get elephant corridor

By GLADWIN EMMANUEL  
NOVEMBER 19, 2006

Coimbatore, Nov 18: The forest department is well into the job of developing an elephant corridor, by linking the rainforest patches within the private estates in Valparai and also linking these patches with the nearby Reserve Forest area, with the help of private estates in the region, as a permanent solution to the man-animal conflict. The plan is in the initial stage, wherein the forest department, this year, has been raising 10,000 rainforest seedlings. The project was expected to yield fruit in about 10 years.

Researchers had identified the suitable species for planting. The Valparai Corridor Conservation Council was also formed, comprising the department, the private estate managements and researchers.

The man-animal conflict and the damages wreaked by wild elephants were a perennial problem in the region. According to informed sources, all development activities in the estate area suffered because of this. There were 23 rainforest patches in the region.

Meanwhile, as a temporary measure, four tamed elephants (kumkis) namely Nanjan, Kapil Dev, Vijayalakshmi and Venkatesh had arrived in Valparai two days ago from the elephant camp in Indira Gandhi Wildlife Sanctuary to keep away the wild elephants.

# They keep loitering on tea estates

## Fourteen wild elephants have damaged shops and houses

Staff Reporter

**VALPARAI:** Fourteen wild elephants loitering since Wednesday on a tea estate five km from here have damaged shops and houses even while giving travellers on the Valparai-Mudis route a chance to view them from close quarters.

Residents are afraid to move around, fearing that the animals would attack them. Forest authorities have been trying to chase the herd into the forests, while wildlife biologists have suggested proactive measures to prevent elephant attacks on the Valparai plateau.

Wildlife biologist M. Ananda Kumar of Nature Conservation Foundation, who has extensively studied elephants in the region, told *The Hindu* that the herd had been moving around quite regularly in the area.

"It is basically a regular movement route for elephants. The herd



**JUMBO NIGHT:** A herd of elephant passing through the Sholayar tea estate near Valparai in Coimbatore District on Saturday. The herd has been staying in the area since Wednesday causing minor damage to shops and a vacant bungalow.

is the biggest in the region, with 19 elephants. Of these, 14 are staying around Sholayar estate and the separated five are roaming in Vellamalai Top area, which is four km

away," he said. Once the herd got together, it was likely to move into the nearby forests.

The problems of the herd straying into tea estates and damaging

property were not caused by the elephants but because of the location.

Surrounded by tea estates spreading over thousands of acres, the elephants found limited feeding grounds inside the estates.

Direct encounters between people and elephants would come down if a narrow, undisturbed passage were created on the regular movement routes, with natural vegetation along the swamps and small rivers.

There were three regular herds in Valparai plateau and more than eight peripheral herds.

Environmentalists consider the tea estates "green deserts" because they could offer nothing by way of food for wildlife.

People should not disturb elephants by going near them or harass them by throwing stones at them, as they would get intimidated, he said.

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ge 4

**ADB officials's visit**

Non-disbursement of subsidy component of tsunami  
relief amount to women self-help groups has caused  
concern among the officials of Asian Development  
Bank - Page 4

# Elephants stay put in tea estates near Valparai

M. Gunasekaran

**POLLACHI:** The herd of 14 elephants continues to stay in tea estates near Valparai. They have been there for over the last one week and the forest department has sent four kumkis (tamed elephants) from its elephant camp at Kolikamuthi to drive the herd into reserve forests.

According to official sources, kumkis - Kapil Dev, Ramu, Karthik and Vijayalakshmi - from the elephant camp run by the forest department on Tuesday have started moving to Valparai. The kumkis along with mahouts reached Manambolli, 15 km from the camp, in the evening.

The sources said these domesticated elephants would reach the spot, Sholayar Tea Estate, five km from Valparai on Wednesday. The operation to drive the herd into the forests is slated to begin on Thursday.

Since Valparai plateau, the traditional migratory path of elephants, is cut off by tea estates, wildlife biologists are stressing the need of creating a corridor along the estates for elephant movement.

Wildlife biologist M. Ananda Kumar of Nature Conservation Foundation attributes the recent conflict between humans and elephants to lack of space available for elephants to move through the plantation landscape in the Valparai region. This makes development and establishment of corridors for Asian elephants all the more inevitable.



**HARASSING THE GENTLE GIANT:** A fire cracker being burst near an elephant herd at Sholayar estate near Valparai.

FILE PICTURE: BY SPECIAL ARRANGEMENT

Based on research to mitigate human-elephant conflict in the region, Mr Kumar said the Solayar-Naduar riverine system, which flows in the centre of the Valparai plateau between estates such as Murugan, Thonimudi, Gajamudi, Injipara, Korangumudi, Sirikundra, is one of the most crucial corridors for elephant movement. This place requires restoration of natural vegetation and retention of existing eucalyptus trees at least 20 meters on either side of the river will facilitate movement of elephants for about five to six km through plantations without any disturbance either to people and elephants.

Mr. Anandakumar says there are several swamps and small rivers passing through the estates. They need to be restored

with natural vegetation cover. He suggests shifting of human habitations from along the major rivers, which are the elephant movement routes.

He said if they were not disturbed or harassed when they were away from colonies they would try to avoid residential areas. There are about 30 to 40 rainforest fragments on the plateau, which provide food and shelter to the elephants. These forest fragments have to be connected, protected from further degradation and restored in a scientific manner.

The forest staff should be provided with facilities such as vehicle, wireless systems, and torchlights to track elephant movement during nights and to communicate it to the public to avoid direct encounters.

Elephants come out of forests as habitats shrink  
Wildlife researcher informs; *Dinathanthi* newspaper

DINATHANTHI 10/12/2006

வாஸ்பாறையில்

# வனப் பகுதி குறைந்து வழுவதால் காட்டு யீட்டு வரும் யானைகள் வன வள ஆராய்ச்சியாளர் தகவல்

ரேராட்டிக்கண், டி.சி.மீ-வனப் பகுதி குறைந்து வருவதால் காட்டடை விட்டு யானைகள் வெளியே வருகின்றன என்று வன வள ஆராய்ச்சியாளர் தெரிவித்தார்.

**காட்டு யான அட்காசம்**  
வரல்பாறை வனப்பகுதி நிறைந்த இடம் ஆகும். இங்கு அதிக எண்ணிக்கையில் வன விலங்குகள் உள்ளன. வாஸ் பாறை வனப் பகுதியில் உள்ள சோலையார், தோனிமுடி, தாய்முடி பகுதியில்கடந்த 2 மாத மாக்காட்டுயானைகளின் அட்காசம் அதிகாக இருந்தது.

இரு இடத்தில் இருந்து மற்ற நோரு இடத்திற்கு காட்டு யானைகள் இடம் பெயர்ந்து செல்லும். அப்போது இடையில் உள்ள குடிமிருப்பு வீடு, சத்துணவு கூடம், மார்கிக் கட்டுமுடம் போன்றவற்றை இடித்து சேதப்படுத்தி வந்தது. இதனால் அந்த பகுதி பொதுமக்கள் மிகவும் சிரமத்திற்கு ஆளாணர்கள்.

## அடந்த கடு

இந்த நிலையில் காட்டு யானை களின் நடமாட்டம் பற்றி ஆராய்ச்சி செய்யும் வன வள பாதுகாப்பு ஆராய்ச்சி நிறுவன ஆராய்ச்சியாளர் ஆனந்த கூறுகையில், வாஸ்பாறையில் இருந்து பொள்வாச்சி செல்லும் மொதின் ரோடு அப்பயர்பாடி 40-வது கொண்டை ஊசி வனை

வுப் பகுதியில் காட்டு பகுதி யில் கூட்டமாக கடந்த 5 நாட்களாக நின்று கொண்டு இருக்கின்றன.

காட்டு யானைகள் நின்று கொண்டு இருக்கும் இடத்தின் அருகே ரேசன் கட்ட, சத்துணவுக் கூடம், தொழிலாளர்கள் குடிமிருப்பு போன்றவை உள்ளது. ஆனால் காட்டு யானைகள் எந்தவித சேதத்தையும் ஏற்றிடுத்த வில்லை. ஏனென்றால் காட்டு யானைகள் இருக்கும் இடத்தை சுற்றி சுமார் 2 கிலோ மீட்டர் துரத்திற்கு அடர்ந்த காட்டாக உள்ளது.

## வெளியே வழுவது இல்லை

எனவே காட்டு யானைகள் சுதந்திரமாகக் கற்றித்திரிக்கின்றன. தக்களுக்கு தேவையான உணவைத் தேடிக் கொள்கின்றன. மேலும் வனப் பகுதியை விட்டு வெளியே வழுவது இல்லை. வனப் பகுதி குறைந்து வருவதே காட்டு யானைகள் காட்டடை விட்டு வெளியே வழுவதற்கு காரணம் என்பது இதன் மூலம் தெரிய வருகிறது. எனவே வனப் பகுதியை அதிகரிக்கவனத் துறை, எஸ்டேட் நிர்வாகங்கள், பொது மக்கள் ஆர்வம்காட்ட வேண்டும். தேனிமுடி, முலைப் பகுதியில் காட்டு யானைகள் தொந்தரவு இருந்ததற்கு அங்கு வனப் பகுதி குறைந்ததே காரணம். எனவே வனத்துறை ஒத்து வழிபடுத்த அடர்ந்த வனப் பகுதியை உருவாக்க வேண்டும்.

இவ்வாறு அவர் கூறினார்.

Forest wealth discussion meeting  
M. Ananda Kumar addresses school children at Valparai



கருத்துரங்கில், வன விலங்கு ஆராய்ச்சியாளர் ஆனந்த பேசிய போது எடுத்த படம்.  
வால்பாறையில் நடந்தது

## வன வள கருத்துரங்கு

ரொட்டிக்கடை, செப்.29-

வன வளம் மற்றும் இயற்கை வளம் பாதுகாப்பது குறித்த கருத்துரங்கு வால்பாறை இயற கை தொண்டு நிறுவனம், மாஸ கல்வி மையம், வால்பாறை அரசு மேல் நிலைப் பள்ளி நாட்டு நலப் பணித் திட்ட மாணவர்கள் சார்பில் வால்பாறையில் நடந்தது. இதற்கு வால் பாறை அரசு மேல் நிலைப் பள்ளி தலைமை ஆசிரியர் தியாகராஜன் தலை மை தாங்கி னார். நாட்டு நலப் பணித் திட்ட அலுவலர் சோழ முன் னிலை வகிததார். வன விலங்கு ஆராய்ச்சியாளர் ஆனந்த பேகம் போது, வன விலங்குகள் பற்றிய விழிப்பு ணர்வு முதலில் பள்ளி மாண வர்கள், தொண்டு நிறுவனங் கருக்கு வரவேண்டும். இன் றைய வேகமாக குழிலில் மக்கள் இயற்கையை பாதுகாப்பதன் அவசியத்தை மறந்து விட்டார்கள்.

காற்று, நீர், பிராணவாயு ஆகியவை கிடைப்பதற்கு இயற கை மிக அவசியம். வன விலங்குகள் வாழ்வதற்கு உரிமை பெற்ற இடத்தில் வாழ்வதற்கு அதற்கு முழு உரிமை உண்டு. வன விலங்குகள் வரும் இடம் தற்போது குறைந்து விட்டது. அதனால் வன விலங்குகள் காட்டை விட்டு வெளியே வருகின்றன. வனத்தை அழிக்க கூடாது. வன விலங்குகளை துன்புறுத்தக் கூடாது. இயற்கையை பாதுகாப்பது நமது கடமை. இவ்வாறு அவர் பேசி னார். முடிவில் இயற்கை அமைப்பு தலைவர் கருமார் நன்றி கூறி னார்.

**வால்பாறை அரசு மருத்துவமனையில்**

## Researcher's ideas for reducing human-elephant conflict Article about M. Ananda Kumar's study; *Dinakaran* newspaper

# காட்டுயானகள் அட்டகாசம் தடுக்க ஆராய்ச்சியாளர்யோசனை

## కెంకొ నువ్వులు కుకులు వ్యాపార కుటుంబం

11 KARRAN SEPTEMBER, 15 2006.

முதலாவது தொடர்பாக இன்றும் அன்றி விசியம் சென்று விடுவிருப்பார். இப்பிரித்தான்தாக நிர்தார தீர்மைக்கூட்டுத் தொடர்பாக மேண்டும் என்றால் மாண்பதற்கிணங்க வழித்தட்டங்களை வருமாறு செய்து, அடர் மாண்பதற்கு தீர்த்தும் மத்தியப்படுத்துகின்ற இடையே கார்ட்டர் எனப் படும் வழித்தட்டங்களை தொடர்டத் தொழிலாளர் மற்றும் உடலமைக்கா பாதுகாப்புத் தலையினர் திறவு அமைக்குமிகு இனிமாங்கள் இருக்கின்ற வழித்தட்டத்தை வெண்டும் என்று வலி புதுத்தி விடுவார். வாஸ்பாறை பகுதியில் 1994 முதல் 2004ம் ஆண்டு

அதையிருக்க வேண்டியிருப்பது. வரை மாண்புகளிடம் சிக்கி அந்த பாராமித்தில், சிறு 27 பேர்கள் உரிமைகளுடைய தொழில்களிலிருந்து கணமிழும் வருத்தம் வாய்க்கூடிய வருத்தம் ஆய்வு செய்யக்கூடியது.

இயற்கை குழுவை குறுவாகக் கூடால் கடத்த 2 ஆண்டு  
வேண்டும். இதை செய்தால் மாண்புகளால் பொதுமக்கள் முழுப்புற ஏற்பட வில்லை.  
பொதுமக்கள் தங்களை தாங்களே காத்துக் கொள்ள விரிப்பு படிடன் இருக்க வேண்டும் என்று விளக்கு  
விடுவார் அவர் கண்ணால் இதை நிட்டத்தில் விடுவார்.